

CONFIDENTIAL

8.2.3

Est. 9/1/02

Superfund Response Action Priority Form

Regional Site Priority: _____

Region: 10

Site Name: McCormick & Baxter Creosoting

CERCLIS ID: ORD 009020603

Site Location

City: Portland

County: Multnomah

State: Oregon

Cong. Dist.: 5

Action: This Superfund Response Action addresses the fund-lead remedial action for the McCormick & Baxter Sediment Operable Unit 4.

X Remedial, or OU#: Sediment OU #4
 Non-Time Critical Removal (NPL/Non-NPL): NPL

First, Subsequent, or Final Action for Site: Subsequent

If final action, will this result in construction completion for Site (Yes/No?): No

Site Description:

Site Location and Land Use

The McCormick and Baxter Creosoting Company, Portland Plant Site (McCormick & Baxter Site or Site) is located at 6900 North Edgewater Street on the northeast bank of the Willamette River in Portland, Oregon. The Site covers approximately 43 acres of land and 15 acres of sediment in the Willamette River. The Site is currently vacant, except for groundwater treatment systems located in the Central Processing Area (CPA) and Former Waste Disposal Area (FWDA). A storage tank (part of the groundwater treatment system) is located in the Tank Farm Area (TFA), a shop building housing the treatment system is located in the CPA, and two office trailers are located in the parking lot north of the central processing area. The site was placed on the Superfund National Priority List on June 1, 1994.

The site is located in an area that was constructed by placement of dredged material in the early 1900s. The site is generally flat and lies between a 120-foot-high bluff near the northeastern border and a 20 foot-high bank along the Willamette River to the southwest. A sandy beach is exposed at the base of the bank, except during brief periods of high river stage (i.e., generally during late winter or early spring).

Land use at the site has been industrial since the 1940s, although the site has been vacant since 1991. The City of Portland Council has endorsed converting the site to a



permanent park to accommodate active and passive recreation. The site is bordered to the northwest and southeast by inactive industrial properties, also located on the Willamette River. A residential area is located along the top of the 120-foot-high bluff to the northeast.

Summary of Site History and Contamination

The McCormick & Baxter Creosoting Company operated between 1944 and 1991 and treated wood products with creosote, pentachlorophenol, and inorganic (arsenic, copper, chromium and zinc) preservative solutions. Historically, process wastes were disposed of in several areas of the Site, including the FWDA. In addition, there were periodic spills and leaks of wood-treating chemicals in the TFA and CPA. Significant concentrations of wood-treating chemicals in soils, groundwater and sediments at the site were confirmed during the RI. Contaminants on the site are chemicals used in the wood preserving industry, including polycyclic aromatic hydrocarbons (PAHs, comprising about 85 percent of creosote constituents), PCP, arsenic, chromium, copper, and zinc. Polychlorinated dibenzo-*p*-dioxins and dibenzofurans (dioxins/furans), which are trace constituents of PCP, were also found in soil, groundwater, and sediment at the site. All contaminants were found in concentrations that exceed natural background levels by substantial margins; maximum values of PAHs, PCP, dioxins/furans and arsenic exceeded background levels by factors of more than 1,000.

The highest soil contaminant concentrations occur primarily in source areas such as the tank farm area, the central process area, the southeast disposal trench area, the former waste disposal area, and in portions of the treated log storage areas. PCP and PAH contamination in the former waste disposal and tank farm areas has been identified in the vadose and saturated zones to depths up to 80 feet bgs, and has migrated horizontally into sediment in the Willamette River. Also in these source areas, miscellaneous wastes such as creosote tar balls, hardened materials resembling asphalt, and naphthalene blocks located west of the central process area, were found on-site from former McCormick & Baxter operations. In addition, surface soil (up to a depth of approximately 6 inches bgs) across most of the McCormick & Baxter property exhibits contaminant concentrations exceeding risk-based screening levels.

As with soil, the main contaminants in groundwater are PAHs, PCP, and metals associated with wood treating solutions. Releases of NAPL contaminants from the main source areas at the site, in particular the tank farm area and the former waste disposal area, have primarily affected the shallow aquifer. Two distinct NAPL plumes exist beneath the Site, one extending from the TFA into the Willamette River and one extending from the FWDA into the Willamette River and Willamette Cove, a shallow inlet located immediately downstream of the Burlington Northern Railroad bridge (see Figure 4). The plumes contain mobile LNAPL and DNAPL, as well as residual NAPL in soil. Mobile NAPL is present from approximately 20 to 80 feet below ground surface (bgs). Regional groundwater flow is toward the river. However, localized reversals of

site groundwater gradients have been recorded (particularly in the FWDA) during seasonal high river stages and flood events.

Dissolved-phase groundwater contamination in the shallow aquifer at the Site is associated with NAPL plumes migrating from the TFA and FWDA. Shallow monitoring wells within NAPL plume areas contain total PAH concentrations in the range of 2,000 to 920,000 micrograms per liter ($\mu\text{g/L}$), but are generally in the range of 10,000 to 100,000 $\mu\text{g/L}$. Inorganic site contaminants (primarily arsenic, chromium, copper, and zinc) were measured in site wells during the RI and during subsequent assessment sampling. Initial results suggested that the shallower groundwater across the site was affected by these inorganic contaminants. For example, in well MW-O along the upgradient property boundary, arsenic, chromium, copper, and zinc were measured at 74, 530, 1,300, and 260,000 $\mu\text{g/L}$, respectively.

PAHs are the primary contaminants present in sediments; however, slightly elevated concentrations of chlorinated phenols, dioxins/furans, and arsenic are also present. The primary contaminated sediment areas are located downgradient of the NAPL plumes in the tank farm and former waste disposal areas. Subsurface sample data indicated that contamination may extend as deep as 35 feet in heavily contaminated areas. The beach seeps and sheens observed on the river are related to bleb releases from sediment, are seasonal in nature, and typically occur in late summer when the river stage is below 3 feet MSL. In addition, areas near the creosote dock and the bulkhead were observed to have ongoing discharges as evidenced by sheens on the surface of the river. Sediment samples also were tested for evidence of toxicity to organisms commonly found in sediment. Sediment toxicity tests conducted included amphipod mortality bioassays using *Hyalella azteca* and MicrotoxTM. These tests indicated significant toxicity to benthic organisms in highly contaminated areas.

Analytical data indicated that storm water runoff from the McCormick & Baxter property to the Willamette River was contaminated with metals, PCP, PAHs, and dioxins/furans through suspension of contaminated soil particles. Following shutdown of the McCormick & Baxter facility in 1991, earthen berms were placed around storm water collection sumps to minimize off-site discharge through these outfalls to the Willamette River. Currently, storm water at the site infiltrates into the subsurface. Surface water samples were not collected from the Willamette River during the RI.

Fish and crayfish tissue samples collected near the site show slight elevations of dioxins/furans and low molecular-weight PAHs compared with fish and crayfish samples collected in other parts of the Willamette River. Visual examination of fish tissue showed no adverse effects from exposure to site-related contaminants other than mild inflammation, which was also observed in fish collected in other areas of the Willamette River.

Response Action Summary

The Oregon Department of Environmental Quality (DEQ) is the lead agency for this Site and the United States Environmental Protection Agency (EPA) is the support agency. Federal funding for response actions is provided by EPA through a Superfund Cooperative Agreement with DEQ.

DEQ conducted a number of interim remedial actions at the site including: construction of a perimeter fence; storm water containment through diversion and collection of storm water in retort sumps; sale and transfer of remaining wood-treating chemicals; demolition and off-site disposal of site structures and materials, including the sale and removal of salvageable equipment and materials from the site; removal of asbestos material from retorts and buildings; and recycling or disposal of chemicals stored in the laboratory; excavation and off-site disposal of approximately 377 tons of contaminated soil from three "hot spot" areas; installation of an interceptor trench downgrading of the tank farm area to recover light nonaqueous-phase liquid (LNAPL); and construction, and operation of a pilot treatment system to treat NAPL-contaminated groundwater.

A Record of Decision (ROD) was issued jointly by EPA and DEQ in March 1996. The ROD specified cleanup remedies for four operable units consisting of soil (OU1), interim groundwater (OU2), final groundwater (OU3) and sediment (OU4). Phase 1 of the soil remedy, consisting of soil hot spots removal, was conducted in 1999 following a ROD amendment in 1998 to allow off-site disposal. The interim groundwater/NAPL extraction and treatment system (OU2) was enhanced in 2000 with the addition of more extraction wells; however, NAPL extraction is currently performed manually due to the lowered levels of NAPL observed in site wells. A subsurface barrier wall was identified in the ROD as a contingent groundwater remedy for containment. In August 2002, EPA and DEQ issued an ESD invoking the barrier wall contingency. Approximately \$4 million of FY 2002 RA funding for the wall was provided to DEQ in July 2002. Construction of the barrier wall will start in January 2003 and be completed by May 2003. Phase 2 of the soil remedy is a soil cap on the upland site and is planned for construction in 2004. The OU4 remedy is a sediment cap; design of the cap is approximately 50% complete.

RA funding for the sediment cap is being requested for FY 2003. The cap will encompass about 15 acres of river sediments. The cap will consist of a chemical isolation layer and a physical isolation layer. NAPL seep areas will receive a special capping material. The cap will need special armoring and the riverbank must be protected to withstand wave action and river currents. The armoring may be topped with fish-friendly material to encourage development of suitable aquatic habitat. Several hundred treated-wood pilings will be removed from the river before the cap is placed.

To attain construction completion, the site upland cap (Phase 2 of the OU1 soil remedy) must also be completed. The planned schedule is for upland cap construction to occur in FY2004. The estimated cost is \$2.5 million.

Cost of the Response Action:

The current cost estimate for the sediment cap is \$7.5 million. McCormick & Baxter recovered approximately \$7 million in insurance recoveries related to the Site that could be distributed to DEQ and EPA. Pursuant to a MOA between EPA and DEQ, EPA received \$2,907,000 of the insurance recovery. EPA placed this amount in a site specific account. The current balance (August 2002) of the special account is approximately \$3.1 million. The cost of implementing the sediment cap remedy exceeds the value of the funds available in the site specific account. Therefore, an additional \$4.4 million of fund monies is needed to construct the sediment cap.

Planned FY 2003 Needs:

EPA has planned for a Remedial Action start in 2003/3 for the OU4 response action. The site cooperative agreement with DEQ must be amended to transfer RA funding to DEQ before the State can proceed to advertise for construction bids.

Readiness Criteria

Date State Superfund Contract or State Cooperative Agreement will be signed:

A State Superfund Contract (SSC) was signed in May 1996, and amended in August 1997. Region 10 expects to amend the SSC by 2003/2 to include costs of the Sediment OU4 response action.

EPA expects the Oregon Department of Environmental Quality will be able to meet its CERCLA cost-share requirement for the OU4 response action. The State was granted a CERCLA credit for \$2,978,419.00 by EPA for past state response costs at the site. This credit will be applied towards and will be sufficient to cover payment of the 10 percent match requirement for sediment cap RA.

If Remedial Action, when will Remedial Design be 95% complete?

Remedial design for the fund-lead OU4 response action is currently approximately 50 percent complete. The remedial design is scheduled to be completed by 2003/3 (June 2003).

When will the Region be able to obligate money to the Site?

Region 10 expects to obligate remedial action funds for OU4 construction to the DEQ by July 2003.

Estimate when on-site construction activities will begin?

Assuming that the schedule is maintained, and there are no delays in obligating funds or procuring contracted services, DEQ expects to begin on-site construction of the sediment cap in 2003/4 (September 2003).

I. Principal Contaminants for OU4 Sediments

Contaminant	Concentration (ppm, or mg/kg)*		
	Media	Average	High
Arsenic	ST		18
Chromium	ST		64
Pentachlorophenol	ST		7.2
Naphthalene	ST		88,000
Benzo(a)pyrene	ST		2,900
Benz(a)anthracene	ST		12,000
Phenanthrene	ST		150,000
Fluoranthene	ST		60,000
Dioxins (TEC)	ST		0.003

* based on *Record of Decision, 1998*.

Media: (AR)Air, (SL)Soil, (ST)Sediment, (GW)Ground Water, (SW)Surface Water, (NA) Not available

II. Site/Contaminant Stability (describe the means/likelihood that contamination could impact other areas/media given current containment):

Because the contaminated sediments are continuously exposed to the overlying Willamette River, releases of PAHs, NAPLs and metals from the sediments to the river are not prevented. In the absence of future EPA response activity at the McCormick & Baxter Sediment OU, releases of hazardous substances to the Willamette River are likely to continue. Contaminated sediments may be moved downstream due to flood events (such as occurred in 1996) and natural erosional factors. Near-shore sediments and beach area experience wind and wave erosion; NAPL seeps in sediments are exposed during seasonal low river flows.

III. Summarize Human Exposures/Risks (describe the exposure scenarios driving the risk and remedy include current/future, on-site/off-site, media, exposure route, receptor):

Sediments at the Site pose an unacceptably high risk to recreational anglers and beach users at the site. There are reports that subsistence angling is also occurring. The

current and future primary pathways of human health risk exposure include ingestion of and dermal contact with contaminated sediments, and consumption of crayfish and fish caught by anglers in the area of contaminated sediments. The beach, although posted for no trespassing, is accessible to the public. The Site is zoned for industrial use. The City of Portland Council has endorsed converting the site to a permanent park to accommodate active and passive recreation. Recreational use of the site shoreline and near-shore river area are likely to continue, as the City is conducting a Willamette River Renaissance planning effort which encourages more river related activities.

Estimate the number of people reasonably anticipated to be exposed in the absence of any future EPA action for each medium.

EPA estimates 25 anglers and 10 trespassers, including children, may be currently exposed to the sediments annually.

Discuss the likelihood that the above exposures will occur?

It is highly likely that these exposures to sediment contamination will occur, because the current practice of posting warning signs has been ineffective in preventing use of the shoreline and near-shore river. These exposures will continue until the cap is placed on the contaminated sediments.

IV. Explain any Ecological Risks/Impacts

Sediments at the Site pose an ecological risk, though not quantified, to aquatic species, including crayfish, clams and numerous fish species, particularly Endangered Species Act (ESA) -listed threatened anadromous fish. Also, shorebirds such as great blue herons and Canada geese, and mammals such as beavers and racoons, have been observed in the Site vicinity and are subject to exposure to sediments. The primary exposure pathways for the aquatic environment include direct contact with contaminated sediment, interstitial pore water and the water column. Major exposure routes for aquatic receptors include dermal exposure, exposure through respiratory structures and ingestion, as well as exposure through ingestion of contaminated prey by higher tropic level species. Bioassay results indicate a substantial area of river sediment is toxic to benthic organisms.

Would natural recovery occur if no action was taken? If so, estimate how long this would take?

Some natural recovery of surface sediments in areas of less severe contamination may be possible; however, the gross amount of sediment contamination, extending as deep as 35 feet in heavily contaminated areas, would severely limit any natural recovery for the vast majority of sediments. Any natural recovery of the sediments could take a generation or more of time.

V. Programmatic Considerations

Describe the degree to which the community accepts the response action:

The proposed plan for the Site, including OU4, was available for a 30-day public comment period in 1995. Public comments favored the prompt implementation of the sediment cap and a cap design lifetime greater than the thirty year period used for costs comparison. More recently during design of the cap, natural resource trustees and Tribes have recommended EPA and DEQ consider dredging sediment hot spots prior to placing the cap. A limited dredging evaluation, which would *not* replace capping, is currently being conducted.

Describe the degree to which the state accepts the response action:

The State of Oregon DEQ drafted the 1996 Record of Decision (ROD) and 1998 ROD Amendment, both of which were jointly issued by DEQ and EPA. DEQ highly supports the OU4 remedy because it achieves substantial reduction in human health and ecological risk in a cost-effective manner. The State understands its long-term responsibility for maintaining the sediment cap after construction.

Describe other programmatic considerations, e.g., natural resource damage claim pending, Brown fields site, uses an innovative technology, construction completion, economic redevelopment, environmental justice, etc.:

The McCormick & Baxter Site is planned to achieve a construction completion in FY 2005/4. However, remedial action funding in the amounts identified and on the schedule laid out is necessary. The last remaining remedial action at the Site will be an upland soil cap for OU1, which is a continuing action because RA funding was provided to DEQ earlier for the soil hot spot removal. The upland soil cap is scheduled for FY2005.

The McCormick & Baxter Site received EPA funding in 1999 as a Superfund Redevelopment Initiative Pilot Project for Reuse Assessment. As a result, site reuse recommendations were adopted by the City of Portland City Council. There is strong local community support for site reuse and redevelopment.

The McCormick & Baxter Site is located within the Portland Harbor Superfund site, a six-mile stretch of the Willamette River. One of the results is greater public visibility of the Site. The cleanup of the McCormick & Baxter site is viewed by the Portland community as a bellwether for EPA's commitment to achieve timely cleanup at sites placed on the NPL. It is important for EPA to fund the remaining remedial actions at McCormick & Baxter, to demonstrate commitment to fully implement the 1996 ROD.